MITIGATION MEASURES USED IN WATER RIGHT PERMITTING

April 2003

Prepared by:
Washington State Department of Ecology
Water Resources Program

******

Table of Contents

******

Executive Summary

Washington water law allows applicants for water right permits to include mitigation plans as part of their proposals to offset any potential adverse effects of their proposed water use. Mitigation plans may also be the result of settlement discussions around permit applications that are denied. Ecology would then review the measures in conjunction with its overall evaluation of the application or agreement and decide if the measures proposed will achieve the desired results, allowing Ecology to issue the permit.

This document reviews mitigation measures that have been approved by the Washington State Department of Ecology's regional offices in conjunction with various permit applications. The measures described have met with varying degrees of success. Some have been quite successful. For others, it is still too early to tell. Regardless, a summary of these measures provides a good perspective on the range of approaches that Ecology has considered.

Strategies for mitigation are as varied as the conditions they are designed to protect and improve. Some mitigation plans are relatively straightforward: to get a groundwater permit, a surface water right must be retired. Others have required more complicated and ongoing solutions, such as the preparation of a Memorandum of Understanding or the creation of a Water Resource Plan for long-term planning in a basin. Examples of mitigation measures include transferring water rights into the state trust water rights program and guaranteeing a portion of the water will augment stream flows, storing surface water runoff to be released at a controlled rate during low flow periods, adding large woody debris or large rock structures to prevent bank erosion, or the consideration and protection of water quality. Many plans require careful monitoring and reporting of water use and water levels.

This document is organized by Ecology regional office (Central, Eastern, Northwest and Southwest). Each mitigation is described with the name of the applicant, a project description and details of the mitigation measure or measures used. For additional details on any of the permits, contact the appropriate regional office.

******

CENTRAL REGIONAL OFFICE

Battle Mountain Gold Company

Project Description:
Battle Mountain Gold Company (BMG) proposed an open pit gold mine near the summit of Buckhorn Mountain, which drains to five distinct perennial streams. The mine pit, its dewatering and the associated waste rock piles would create hydrologic disturbance in four of the five watersheds draining from the summit, initially during mining and ultimately in perpetuity.

Mitigation:
General strategies were developed for mitigating the hydrologic impacts associated with the mine construction, operation, closure and site rehabilitation as a part of the 1997 Environmental Impact Statement (EIS). Permits and associated mitigation plans were developed to address protection of existing water rights, supply wetland enhancement with reliable water sources, and to construct a distribution system that would operate perpetually to redistribute water from the pit lake (to simulate the pre-mining condition in the five drainages on the mountain).

The plans were backed by Environmental Protection Performance Security (EPPS) to ensure that even if BMG failed financially, capital and operating funds were available to construct and operate the facilities for as long as the mitigation was required. However, in 1999, the Pollution Controls Hearing Board (PCHB) overturned Ecology's 401 Certification, citing its speculative nature and questioning the adequacy of the off-site mitigation for aquatic resource impacts, primarily wetlands. The PCHB also held that the plan for flow mitigation was flawed and it reversed all of the proposed decisions approving the use of the Starrem Creek reservoir, "flood water" diversion from Myers Creek, various ground water sources, and changes to existing adjudicated irrigation water rights for mining purposes.

Trendwest Resorts, Inc.

Project Description:
Trendwest proposed development of the Mountain Star Master Planned Resort on property near Cle Elum and Roslyn and to develop additional property in the city of Cle Elum's recently expanded Urban Growth Area (UGA). Trendwest developed a water supply strategy for each project that relies on reallocating water from other current uses within the upper Yakima Basin. (The strategy is detailed in the 2002 Cle Elum EIS). Trendwest acquired water right claims on the Yakima River (mainstem) near Ellensburg and on four upper Yakima River tributaries between Easton and Ellensburg. Trendwest proposed to:

- transfer its acquired tributary rights to Ecology's water rights trust program (to augment instream flows and mitigate its withdrawal of a greater quantity of mainstem consumptive water),

- mitigate for increases in consumptive uses at the resort, for development of lands formerly appurtenant to the tributary rights, and for induced off-site housing.

In order to meet its project schedule requirements, Trendwest took two actions. First, it filed change applications on the mainstem rights with the Kittitas County Water Conservancy Board. The site of the resort is comprised of timberland and there are no water rights for seasonal or domestic use. The change requests were for municipal, domestic, and recreational use. Secondly, it paid for priority processing of its tributary rights to the instream flow trust through a cost-reimbursement agreement.

The Board approved Trendwest's mainstem changes. At the end of Ecology's statutory review period for the Board's decision, only two tributary rights had been transferred into Ecology's water rights trust program for mitigation as outlined in the EIS. As such, Ecology conditioned the Board's decision allowing Trendwest approximately half of the mainstem rights, until the other transfers had been completed. Trendwest filed an appeal to clarify a number of issues associated with the Board's and Ecology's decision, which was settled in March 2003. As of that time, there was one outstanding appeal remaining on a portion of the water rights transferred into the state's Trust Water Rights Program.

Mitigation:
Trendwest constructed a hydrologic/hydrogeologic model to evaluate the impacts associated with the upstream mainstem transfer and concurrent mitigation from tributary sources. An Ecology consultant (paid for by Trendwest through a cost-reimbursement agreement) provided an independent review of the results. The model predicted monthly Yakima River changes (both positive and negative) associated with the holistic change, incorporating return flow changes, season/timing changes, point of diversion location changes, priority date issues, and Bureau of Reclamation (Bureau) river operations.

Trendwest agreed to a number of mitigation activities, including:

- "donation" of a portion of the revenue from each lot sold to a conservation fund to buy water,
- setting aside a significant property easement along the river for habitat,
- providing money to "impacted" water right holders to repair/replace diversions,
- transferring a more senior water right to Rosalyn to offset a junior water right,
- dedicating some trust water appurtenant to tributary lands for future development on those lands, and
- transferring water rights to Cle Elum for UGA impacts.

Quad Cities (Kennewick, Pasco, Richland, West Richland)

Project Description:
In September 1991, an application was submitted to Ecology to divert water from the Columbia River for municipal, commercial and industrial purposes. The application requested water sufficient for the municipal growth for the Quad Cities through 2051. Amid various

lawsuits, and as of August 2002, Ecology completed a draft Record of Examination (ROE) that resulted in the issuance of a permit in November 2002.

As recommended, the permit was issued for 178 cubic feet per second (cfs) and 96,619 acre-feet (ac-ft) per year for use year-round from over a dozen existing points of diversion and withdrawal (all in continuity with the Columbia River) among the cities. Additional quantities to meet projected demand beyond 2008 are to be determined by a six-year review process. This review process includes required water system plan submittals, determination of consumptive uses, water right self-assessments, and water conservation performance evaluations.

The ROE concluded that the permitted withdrawal would not impair existing rights if the instream flow objectives specified in statute were met. The ROE provides the Quad Cities with uninterruptible water rights, as long as instream flow objectives are met, and if not, so long as there is approved mitigation for consumptive use impacts. (No mitigation is required for wastewater return flows).

Mitigation:
The utility of this permit to the Quad cities is dependent on successful mitigation, which will provide an uninterruptible public water supply. Ecology agrees in the ROE to offset the consumptive use impacts for the first six years of growth (approximately eight cfs) in perpetuity with water from the State Water Rights Trust Program. The trust water acquired will be used to achieve a local instream flow benefit on the Walla Walla River. It will also provide a reliable long-term water supply for municipal growth (instead of rural sprawl), especially in cities where cleanup of the Hanford facility (and the resulting environmental benefit) is a significant factor in area demographics.

In the future, the Quad cities will need to find and transfer water to be used as mitigation for the consumptive impacts of the right beyond eight cfs. The ROE also recommended significant required conservation measures, including leak detection), a meter testing and repair program, residential retrofit program, large water user water audit program, and water system planning and drought response planning. As of March 2003, an appeal of this permit by the Center for Environmental Law and Policy is pending before the PCHB.

Columbia-Snake River Irrigators Association (CSRIA)

Project Description:
This mitigation was included as part of a lawsuit settlement in November 2002 between members of the Columbia-Snake River Irrigators Association (CSRIA) and Ecology. The settlement concerned several applications for new water rights from the Columbia River and was based, in large part, upon mitigation offered by the CSRIA.

The draft ROEs released in September 2001 to the applicants and consulting agencies authorized diversion of water for irrigation purposes during the months of April, May, June, and September. This authorization was, however, subject to curtailment when flows

recommended by the Washington State Department of Fish and Wildlife (WDFW) were not met or exceeded. Water was not authorized during July and August because water in excess of the recommended flows was not sufficiently reliable. The purpose in releasing the draft ROEs was to inform the applicants of Ecology's proposed conditions (based upon the consultation process) and to provide them with an opportunity to propose mitigation so that they might obtain sufficient reliability.

In December 2001, the CSRIA asked the Benton County Superior Court for injunctive relief. The CSRIA claimed, in part, that the state had improperly implemented a rule by including the federal Biological Opinion (BiOp) minimum instream flow requirements in the draft ROE without providing public review or following other rulemaking procedures, as required by the state's Administrative Procedures Act (APA). Until a hearing was scheduled, Ecology and the CSRIA agreed to a "standstill" order that was filed with the Court. When the case was heard, the Judge ruled that the state could not apply the flow objectives to the pending applications without first following the APA procedures.

On November 18, 2002 Benton County began hearing the remainder of the CSRIA v. Ecology case. During the trial, both Ecology and CSRIA agreed to suspend the court hearings and attempt mediation. On November 21, 2002, a settlement among the parties was reached. The settlement was directly responsive to the public interest concerns relating to protection and restoration of Columbia River salmonids listed under the Endangered Species Act.

Mitigation:

Under the terms of the settlement, the pending applicants would be offered two options for conditioning of their permits in a manner to protect the public's interest:

- agree to interruptible rights conditioned on the 2000 BiOp flows; or
- pay $10 per year per acre-foot of water used in exchange for a commitment by the state to allow uninterrupted diversion of the authorized water even during periods when BiOp flow objectives were not met.

Under the second option, irrigators are required to implement, operate and maintain a metering and monitoring program approved by Ecology. The funding derived from the annual payments is intended to fund mitigation activities that would be directed by Ecology and WDFW. The funds may also be used to supplement ongoing Bonneville Power Administration salmon recovery efforts, if Ecology and WDFW determine that would provide the maximum benefit to the listed species. Also, the state would be responsible for using a portion of the annual payments to fund the purchase of "replacement" water in years (like 2001) when the permits would otherwise have been interrupted because of instream flows protected by rule (Ch. 173-563 WAC).

All six applicants elected to accept a permit with the fee-based mitigation option.

EASTERN REGIONAL OFFICE

Starbuck Power LLC

Project Description:
KVA Resources filed an application for a new water right in October 1993, and the application was assigned to Starbuck Power LLC in March 2001. The application requested the right to withdraw 300 gallons per minute (gpm), continuously, for operation of a "dry" natural gas fueled power plant.

The proposed power plant was to be located near the mouth of the Tucannon River, below the Town of Starbuck. Starbuck LLC originally proposed drilling a production well into the basalt aquifer, in order to avoid immediate impacts to the Snake River. A review of area hydrology, however, determined that withdrawing water from a basalt aquifer well could result in impacts not only to the Snake River, but to the Palouse and Tucannon Rivers as well. It was therefore decided to drill one or more wells into the upper alluvial gravel aquifer. The impacts of withdrawal of water from one or more of these shallow wells would be limited to the Snake River, causing some depletion in base flow.

Mitigation:
To mitigate for the impact to the Snake from this new withdrawal, Starbuck Power entered into a lease agreement with a claim-holder on the Tucannon River. The point of diversion and place of use for this claim are located about 18 miles upstream from the mouth of the Tucannon.

The proposed mitigation measure would provide 575 gpm of continuous flow from May 6 to September 15 of each year for the next 30 years (the expected life of the power plant). The ROE, approving withdrawal of 300 gpm for electric power generation and domestic supply, was issued in 2002 subject to the mitigation described above. The project is currently on hold pending financing.

NORTHWEST REGIONAL OFFICE

Back Forty, Incorporated

Project Description:
The applicant requested a permit for a ground water well to serve a 28-home development in Kitsap County. The well was located 3,250 feet from Gamble Creek, which is closed. The well was determined to be in hydraulic continuity with Gamble Creek.

Mitigation**:**
Analytical stream depletion modeling was performed, assuming the proposed system consisted of 28 homes, for a total 14 acre-feet per year based on average use of 0.5 acre-feet per service

connection per year. Assuming higher usage in the summer season, two gallons per minute (gpm) was calculated as appropriate mitigation for all 28 service connections. Therefore the permit required pumping two gpm continuously from April 25 through October 31 each year into an infiltration pond at the headwaters of a tributary to Gamble Creek. Monthly meter readings of quantities pumped, as well as static water levels, were required to be submitted to Ecology as conditions for the permit.

Conifer Ridge Enterprises Inc.

Project Description:
The applicant requested a ground water well permit for irrigation of a golf course. The application was denied by Ecology because the well was determined to be in hydraulic continuity with the Snoqualmie River, which is subject to instream flows. Records indicate flows are not met an average of 112 days per year at the Carnation gauge. Ecology's denial was appealed by the applicant, and the Tulalip Tribe was granted a Motion to Intervene by the PCHB. A settlement agreement between the parties was reached by the development of the mitigation plan.

Mitigation:
Conifer Ridge developed a stream flow augmentation plan that will enhance instream flows of Harris Creek, a tributary to the Snoqualmie River, while causing no net detrimental effect to the instream flows of the Snoqualmie River. The settlement between parties resulted in approval for 250 gpm and 91 ac-ft to be used from May 15 through October 31 annually, to be divided between golf course irrigation and the augmentation of Harris Creek. Conifer Ridge was required to enhance flows at a point on a tributary of Harris Creek by means of a pipe designed to minimize adverse effects on ambient water temperature.

Conifer Ridge must provide written notice by June 5 annually confirming commencement of augmentation flow. During the permit stage Conifer Ridge is required to collect, on a monthly basis, readings of:

- total water use and the amount of water discharged into Harris Creek, and
- water level readings in both the pumping well and the monitoring well.

Conifer Ridge is also required to provide weekly readings of creek stage during the dry season and monthly readings for the rest of the year. All recorded information is provided in one report at the conclusion of permit stage and is submitted to both Ecology and the Tulalip Tribe.

City of Marysville

Project Description:
The City of Marysville applied for a ground water permit for a well to withdraw 400 gpm for municipal supply in February 1988. Ecology approved the application in January 1996. The decision was appealed by the Tulalip Tribe on the basis that the well is in hydraulic continuity with the Stillaguamish River and that use of the well would impair stream flows in the

Stillaguamish and its tributaries. With further review, Ecology found that the well could impair stream flows in Cougar Creek and related waters downstream. These findings were disputed by the city. As a settlement between the parties, a stream flow augmentation project was developed to benefit instream flows and fishery conditions in the Stillaguamish River and its tributaries.

Mitigation:
The City of Marysville developed a mitigation plan that required the city to install a stream discharge pipe into Cougar Creek whereby water is released at a controlled rate to maintain water quality conditions. The settlement specified that the city was to release water at a higher rate from July through September and at a lower rate during June and October. In addition, the city was required to monitor weekly from June through September and to adjust the release rate based on the monitoring results. The augmentation project water came from an older existing water right held by the city. The permit for the new well was issued in April 1999.

Washington State Patrol

Project Description:
The applicant requested a ground water right to withdraw additional water for the State Patrol's Fire Training Center located near North Bend. The training center is approximately 48 acres and trains firefighters and military personnel on firefighting techniques. The facility has three water systems: domestic, process and fire protection water. At the time of the application, the water source for the facility was spring and surface water sources. The Department of Health (DOH) requested priority processing to move the applicant to a ground water well, a safer water source.

Mitigation:
Approving the well would further impair instream flows in the Snoqualmie River, which is near where the training center is located. In exchange for approving the well, the applicant agreed to retire a portion of the surface water right. The well withdrawal was thought to cause less of a direct impact on instream flows in the Snoqualmie River. A portion of the perfected surface water right was relinquished and a superseding certificate was issued for the balance of the perfected portion of the water right for surface water storage. The new ground water right was not conditioned on instream flows, as the retirement of the surface water diversions was determined to lessen the direct impact of the water use by the training center.

Town of Hamilton

Project Description:
At the time of the application, the town of Hamilton owned a well which was located in the floodplain of the Skagit River. The town applied to move the well upland and out of the floodplain. However, relocating the well could cause leakage from a perched aquifer that feeds Little Careys Creek, which is part of a system that provides high-quality spawning and rearing habitat for salmon species. Therefore, a new application was filed requesting a non-

consumptive water right to augment the stream from ground water, to lessen the impact of the town's withdrawal of ground water from the new upland well.

Mitigation:
A pump test was required for the new well location, in which the town was required to collect data on the impact to surface waters. Using the pump test information and other data, a hydrogeologic conceptual model was developed to estimate impact to Little Careys Creek and other surface waters. A stream augmentation project was then recommended to offset the well's impacts by releasing ground water into the creek. A vault and diffuser was installed in Little Careys Creek to lessen the impact of the augmentation on the water quality. Up to 30 gpm will flow into the creek during the dry season each year, with an annual limit of 36 acre feet per year (afy). Ecology and the town will define the dry season each year based on yearly precipitation totals.

King County Water District 111

Project Description:
Between 1988 and 1991, King County Water District 111 applied for three new water rights:

- Application G1-25263: for 1500 gpm,
- Application G1-25374: for 1,000 gpm, and
- Application G1-26086: for 750 gpm.

All three applications were denied by Ecology in January 1996. The district appealed to PCHB with the Muckleshoot Tribe intervening as an interested party. The mitigation plan led to a settlement.

Mitigation:
The mitigation plan has several elements:

- The district agreed to place three of their existing wells on emergency standby, after the district intertied with the City of Auburn.
- The well associated with G1-25374 was approved as an additional point of withdrawal for the District's existing water rights. Approval of this well limits the District to a withdrawal rate of 1,925 gpm and 2,204 afy.
- The well associated with G1-25263 was permitted after monitoring demonstrated that the impact of withdrawals upon the quantity and quality of stream flows in the Soos Creek system or ground water had been no greater than the impacts of the four other wells that the district owns and operates.
- If monitoring demonstrates that the additional wells will have no greater impact, then G1-25263 and G1-26086 will be added as additional points of withdrawal under existing water rights.

Thus, the applicant did not receive a net increase in water appropriations through approval of these new points of withdrawals, but did achieve greater flexibility through the use of interties to reduce consumption and with the ability to use different points of withdrawal.

Ames Lake Water Association

Project Description:
In the early 1990s, the Ames Lake Water Association filed three applications for new ground water appropriations. Ecology approved the applications in December 1995. The Tulalip Tribe appealed the decisions. The Water Association also has five other ground water rights. All of their wells are located in either the Patterson Creek drainage basin and/or the Snoqualmie River Valley. Patterson Creek is closed to further withdrawals, and the Snoqualmie River is subject to instream flows.

Mitigation:
A mitigation plan was developed under the consultation of hydrologic and fisheries consultants as part of the settlement agreement between the parties. The mitigation plan allows for the issuance of a permit for the Cougar Mountain well, located in the Snoqualmie River Valley. In exchange, the Association must meet the following requirements:

- be limited to its existing instantaneous withdrawal rate in the Patterson Creek Basin
- withdraw water to meet its additional peak demands from a well located in the Snoqualmie Basin rather than in the Patterson Creek, which is more sensitive to water withdrawals. (Reducing overall annual water withdrawal in the Patterson Creek Basin is accomplished by using a combination of wells located in Snoqualmie River Valley and limited use of Patterson Creek wells from June though September.)
- discharge mitigation water to a surface water tributary of Patterson Creek in varying quantities when the Association begins pumping more than 340 gpm. The Association will continue augmentation uninterrupted for the duration of the dry season.
- submit change applications for all of their water rights so they can be updated with the mitigation elements.

Ecology approved the applications for change to all eight water rights in 2002.

St. Andrews One, LLC

Project Description:
In January 1996, Ecology denied a water right application filed for ground water by Donald Saunders for domestic supply and irrigation of a golf course, as the well was in hydraulic continuity with Little Pilchuck Creek. Little Pilchuck Creek is closed to further appropriation, and the Pilchuck River has an instream flow level that is not always met. The decision was appealed to the PCHB. The property and the water right interest were sold before the appeal process concluded and the application was assigned to St. Andrews One, LLC.

Several parties with water right appeals of a similar nature pending before the PCHB filed motions for summary judgment regarding common legal issues. The PCHB held consolidated briefings and hearings across the state. The Board affirmed Ecology's request for summary judgment that the St. Andrews wells were in hydraulic continuity with Little Pilchuck Creek. St. Andrews appealed the PCHB's Statewide Order and the Final Order on its application. The Court remanded the Board's decision, giving the Board discretion as to whether the proposed

mitigation measures by St. Andrews will offset any impacts associated with the ground water withdrawals. St. Andrews then conducted additional ground water modeling studies and the parties of the appeal (Ecology, Tulalip Tribe, and the Center for Environmental Law and Policy – CELP) came to a settlement with the following mitigation plan.

Mitigation:
The parties agreed that the St. Andrews One Augmentation Plan will benefit instream flows and fisheries habitat in Little Pilchuck Creek and cause no net detrimental effect to the instream flows of the Pilchuck River. Elements of the plan include:

- Authorization of the withdrawal of 330 gpm and 108.3 acre-feet to be used during the period from May 15 through October 31 annually. A portion of this is for golf course and lawn and garden irrigation and the remainder is for stream augmentation of Little Pilchuck Creek.
- Installation of a continuous totalizing flow meter and pressure-regulating valve to monitor and control the rate of release.
- A monitoring well will be authorized by Ecology to permit the evaluation of potential impacts resulting from pumping at the production and augmentation wells to the aquifer and overlying Vashon advance aquifer.
- Water quality samples will be taken to ensure the discharged water is oxygenated and to create thermal equilibrium prior entering the creek.
- St. Andrews shall deliver a report at the end of each irrigation season with the data from the flow meter, continuous recording data logger and hand measurements of the production wells.
- St. Andrews will participate in the Jade Greens Golf Course Water Conservation Pilot Project through the 2003 irrigation season to assist in the development of water conservation measures for existing golf courses in Western Washington.

North Perry Avenue Water District

Project Description:
The North Perry Avenue Water District (NPAWD) applied for changes to their water rights to alleviate an emergency situation declared by DOH. The NPAWD was having difficulty in utilizing its authorized water. The older wells were not producing their allocated instantaneous or annual quantities. Plans by NPAWD to ensure adequate water supplies were dependent on the transfer of existing allocations to new points of withdrawal, or to applications for new instantaneous quantities. The applications for change requested that additional points of withdrawal from the older, shallower wells be added to existing water rights using the deeper aquifer.

The effect of increased use of wells in the deep aquifer on the shallow wells and stream flows was uncertain. Recovery in shallow monitoring wells turned off for the test exceeded any effect of pumping. Given the current understanding of hydraulic continuity between the surface and subsurface waters of the Manette Peninsula, it was uncertain if pumping the deep aquifer at a greater rate would impacts flows on nearby Steele Creek. NPAWD agreed to mitigate for any potential impact on the creek through its mitigation plan.

Mitigation:
The NPAWD agreed to provide instream flow augmentation during low flow periods (June 1 to October 15) as part of a mitigation plan to offset any potential harmful effects of withdrawals from the well. As part of the mitigation project, the NPAWD agreed to the following:

(1) Construction of pipes and a tank, or other suitable facilities, sufficient to deliver uninterrupted non-chlorinated fresh water. In order to prevent bank erosion and to ensure water oxygenation, riprap was to be placed on the stream bank below the point of augmentation. After the completion of the fifth year of augmentation, NPAWD or Ecology could request a review of the effectiveness of augmentation.

(2) Construction and maintainance of a stream gauge to be located near the mouth of Steele Creek. Stream flow data was to be recorded at least monthly and made available to Ecology upon request.

(3) Providing Ecology with data and maps indicating the location(s) of initiation points (springs and seeps contributing to stream flow) for the three forks of Steele Creek and for Ilahee Creek.

Cadman (Rock) Inc.

Project Description:
Ecology denied three water right applications filed by Cadman (Rock) Inc. to provide water for their High Rock Quarry operations. Cadman uses water for quarry operations, on-site sand and gravel washing operations, rock crushing, dust control, vehicle maintenance, and other quarry operations. The majority of this water is pumped from a pond, used in operations, then recycled to a series of settling ponds and is ultimately returned to the source pond. The remainder is pumped from wells and used similarly for cooling, dust control and vehicle maintenance. Water consumption at the site is primarily through evaporative losses during the summer season.

Cadman filed timely appeals to the PCHB on all three denied applications. A settlement agreement was negotiated between the applicant, Ecology and other interested parties which included a mitigation plan as one of the central elements.

Mitigation:
Cadman developed a mitigation plan that the parties agree would compensate for any impacts to regulated surface water bodies. The goals of the plan are:

- To store site surface water runoff and release this water at a controlled rate to the local surface water system during low flow periods;
- To mitigate potential effects on stream flow in the Snoqualmie River; and
- To discharge water compatible in temperatures and quality to support salmonid populations.

The source of mitigation water will be from storage ponds on the Cadman site. Cadman was to install a totalizing flow meter and pressure regulating valve to monitor and control the rate of

release. Cadman was also to monitor the releases three times per week during the four month release period and report to Ecology and the Tulalip Tribe each year.

City of Sumas

Project Description:
Ecology issued a supplemental water right permit to the City of Sumas in May 1993. The permit was for municipal and industrial supply primarily to serve the Sumas Energy company's cogeneration plants. Sumas' well fields are located near Johnson Creek, a tributary to the Sumas River. Both Johnson Creek and the Sumas River are closed.

Mitigation:
A mitigation plan to augment stream flow in Johnson Creek was developed as part of the permit approval process. It was determined that the creek should be augmented at a rate of 18 gpm for every 100 gpm withdrawn from the city's well fields year-round. In addition, Sumas was required to monitor the stream for nitrate levels.

Fairwood Golf Course

Project Description:
Fairwood Golf Course submitted an application for new water from Fairwood's Well 3 located on their property near Maple Valley. The water was needed for irrigation of its golf course during the irrigation season.

Ecology, after requiring various tests and analyses of the impact to nearby Molasses and Madsen Creeks, issued an ROE granting the appropriation. The ROE required that the applicants develop and implement a mitigation plan to address the impacts to water quantity and quality in Molasses and Madsen creeks. Elements of the plan included:

- Daily stream flow measurements,
- Mitigation water amount be split 60:40 between Molasses and Madsen Creeks,
- Water quality to be monitored in both streams, and
- Documentation of consumption and how conservation measures are being enacted.

The ROE was appealed to the PCHB by the Muckleshoot Tribe. In particular, the Tribe expressed concerns that Ecology issued the permit without determining whether the permit conditions would protect the instream flows for the Cedar River, to which Molasses and Madsen Creeks are tributary, and that the permit was issued without a mitigation plan established prior to Fairwood's exercise of its permitted ground water withdrawal.

Mitigation:

An amended permit was issued by Ecology that included provisions settled upon by all three parties. The provisions included:

- Any withdrawal greater than 300 gpm was to be dedicated solely for flow mitigation and augmentation.
- Fairwood was to use water efficiency and conservation measures.
- Fairwood was to dedicate a combined continuous discharge to Molasses and Madsen Creeks when the stream flows from those creeks require augmentation.
- Fairwood, at its sole expense, was to construct three monitoring stations. They would also monitor certain water quality parameters.
- Fairwood's obligations toward stream enhancement include the addition of large woody debris or large rock structures to Madsen and Molasses Creeks.
- After five years, if Ecology finds that Fairwood has complied with permit conditions and has substantially achieved the goals of the mitigation plan, then Ecology will issue a certificate of water right for a maximum of 450 gpm, for Well 3. The certificate will be for irrigation and instream flow uses, subject to conditions of the amended ROE and permit, including the protection of senior water users.

Seabeck Subbasin Mitigation Plan

Project Description:
The Public Utility District Number 1 of Kitsap County (KPUD) applied for seven water rights for municipal supply to serve anticipated growth in the Seabeck area and other areas within their service area. A substantial quantity of water was requested from this sub-basin. It was clear that Ecology could not approve the water rights without extensive hydrogeologic modeling to demonstrate that the withdrawals would not cause impairment.

Several parties were interested or affected by the proposed water appropriations. As a result, the Seabeck Technical Advisory Committee (STAC) was assembled to jointly discuss the future of the Seabeck sub-basin. The committee was comprised of local and state government agencies, tribes and other interested parties. One of the primary goals of the organization was to study the impacts of the proposed ground water withdrawals on the surface streams, and to develop mitigation measures. The three surface streams in the sub-basin are either closed (Seabeck Creek) or partially closed from May to October (Big Beef and Anderson Creeks).

Mitigation:
The modeling conducted by the KPUD was used to determine the quantities of water appropriations to be issued and the extent of mitigation measures to offset any impact of these withdrawals. Due to the quantities of water requested and the long time frame for the anticipated growth, a phased approach to granting water rights was adopted. Thus, for the first phase, 1000 gpm and 1000 afy were approved to be withdrawn from any combination of the seven wells. Annual water appropriations would then increase steadily over the next three stages. Subsequent phases cannot begin until water from the previous phase is put to full beneficial use.

In exchange for approving increased water withdrawals from wells in the deep aquifer, the KPUD agreed to decommission wells in the perched aquifer. As the deep wells go online, the shallow wells will be decommissioned and the water rights associated with the shallow wells

will be either transferred or canceled. If it is not feasible to decommission some of the wells, the KPUD will directly augment stream flows at a predetermined rate in each stream year-round. Further stream augmentation and fish habitat restoration may be considered or required in the future to offset the impacts of further water appropriations.

The KPUD also was required to continue monitoring for chlorides and water levels in their wells. If there is evidence of seawater intrusion, the KPUD may be required to limit use of these wells. The KPUD will summarize the monitoring results in an annual report to be given to all parties of the STAC. The STAC also recommended that Kitsap County be more cognizant of the impact of land use decisions on the hydrology of the sub-basin in their land use decisions.

SOUTHWEST REGIONAL OFFICE

Puyallup Sand & Gravel

Project Description:
In December 1988, Puyallup Sand & Gravel filed for a permit to appropriate public ground water. The applicant requested a withdrawal rate of 675 gpm from two wells for industrial use, specifically sand and gravel washing and dust control.

In January 1996, Ecology denied the request for a water right permit. Ecology was concerned that the withdrawal would reduce the amount of ground water discharging to the Clover-Chambers Creek system. Puyallup Sand & Gravel appealed the denial, and Ecology and the applicant entered into settlement discussions. Based on the terms of a stipulation and agreed order of continuance, Ecology and Puyallup Sand & Gravel agreed to an arrangement that minimized the adverse impacts of the proposed appropriation. As a result of this agreement, Puyallup Sand & Gravel filed a water right application February 1997 that clarified the project's water needs and supplied an updated water conservation strategy.

Mitigation:
As a result of a PCHB settlement, Ecology agreed to evaluate how much of the total water use was "consumptive" and how much of the water remained on the site and was available to be reused. Since the nature of the water use was sand and gravel washing, the applicant's consultant prepared documentation that showed how much water left the site as part of the product or was lost to evaporation, as opposed to water that was reused.

Ecology also allowed Puyallup Sand & Gravel to purchase and relinquish a water right in the amount of the consumptive portion of the water use only. The consumptive portion of the water used for this project amounts to 11.6 acre-feet per year. Ecology concluded that if Puyallup Sand & Gravel acquired a valid water right of comparable size, the actual impact to the basin would be insignificant.

Park Junction Partners

Project Description:
Park Junction Partners applied for a permit to appropriate public ground water for domestic, irrigation, and geothermal purposes from a maximum of three water supply wells. The project included a 270-room lodge with a 500-person conference center, an 18-hole golf course, 275 condominiums, 25 homes, 50 small cabins, up to 120 units of employee housing, and 50,000 square feet of retail space.

Mitigation:
Ecology allowed the applicant to mitigate for the potential effects they might have on the Nisqually River. To offset the possibility that surface water flows might be affected, approval of this application was contingent on the cessation of the existing uses of water associated with this property, including withdrawals from several unpermitted wells established under the ground water exemption.

An additional mitigation measure to be implemented as part of the project is the use of reclaimed water for irrigation of the golf course and landscaping. The proposed resort will use a wastewater reclamation system that will treat wastewater to a tertiary level so that the effluent can be used for irrigating the golf course and landscaped areas of the resort. The treatment process will be designed to meet the wastewater reclamation and reuse standards adopted in 1997 by Ecology and DOH. Normally this water would be discharged to ground or surface water in accordance with a discharge permit. However by using this water for irrigation, the total amount of water necessary for irrigation purposes will be reduced by approximately half.

Clark Public Utilities and the Salmon Creek Memorandum of Understanding

Project Description:
In the early 1990s, nine new applications for water were filed by Clark Public Utilities (CPU). Ecology was concerned that these wells, which are in continuity with Salmon Creek, would impact existing surface water rights and flows in the creek during the critical May through October period. CPU felt that Ch. 173–592 WAC, Reservation of Future Public Water Supply for Clark County Ground Water, entitled them to all the water requested. Ecology disagreed.

Ecology and CPU had both technical and policy disputes over the extent ("significance") of impact, the lack of a hydraulic continuity policy, and the meaning and intent of the Reservation. Mutual efforts toward reaching a cooperative agreement have not succeeded.

Mitigation:
In order to break the deadlock, A Memorandum of Understanding (MOU) between Ecology, Clark County, and CPUs was developed. The purpose of the MOU is to design and implement a Water Resource Plan (WRP) for the Salmon Creek Basin. The MOU contains provisions for the protection of existing senior water rights, enhancement of Salmon Creek, and mechanisms to protect instream flows of the creek and tributaries. The WRP study process and

recommended plan will be used by Ecology as the technical and management criteria for all water allocation decisions in the Salmon Creek Basin.

The management group is comprised of representatives from Clark County Government, CPU, Ecology and DOH. The group meets annually.

Cascade Aqua Farms

Project Description:
In November 1992, Brian Mencke of Cascade Aqua Farms was issued a permit to divert 20 cfs and 14,476 acre-feet of water from the Tilton River for fish propagation.

Mitigation:
The permit was issued subject to a Mitigation Agreement with Ecology and the Washington Department of Fish and Wildlife. The agreement details specific actions that Cascade Aqua Farms is to take to mitigate the reduction in stream flow in the Tilton River, and stipulates maximum withdrawal and minimum stream flows for the Tilton River. The gauging requirements and stream flow parameters outlined in the Mitigation Agreement are made provisions of this permit. The permit was subsequently amended, and reissued with a higher minimum stream flow.

Seiku Sand and Gravel

Project Description:
Seiku Sand and Gravel filed an application in December 1991, requesting a permit to take water from three wells for gravel washing and concrete batching at Seiku's Clallam Bay facility. Gravel washing comprises the major use of water withdrawn at the site. Ecology's concerns with this project centered primarily around public interest, particularly water quality violations, destruction of riparian habitat, lack of fish passage, and the need for re-vegetation of sensitive areas.

Mitigation:
In May 1993, Tom Hahn and Frank Miles of Seiku Sand and Gravel, were issued a permit to withdraw up to 100 gpm and 67 acre-feet of water for gravel washing and concrete batching. The permit was issued subject to an April 1993 Management/Mitigation Agreement with Ecology. The agreement details the specific actions to be taken to mitigate any adverse impacts to the area by the withdrawal of water, and actions needed to manage and protect the pond and wetland area near the gravel pit.

P&D Development

Project Description:
P&D Development's original water right application was denied. In May 1997, Paul Blake of P&D Development was issued a ground water permit to withdraw 32 gpm and 4 acre-feet of water for domestic supply for six houses.

Mitigation:
The permit was issued subject to a December 1996 Stipulation and agreed order of Dismissal, which details specific actions that will be taken to mitigate any adverse impact caused to the area by the withdrawal of water. The actions include creation of stormwater ponds and the gradual release of water to maintain stream flows in Harris Creek.

Cedar View Tracts

Project Description:
This is a small multiple domestic system in Mason County. Ecology evaluated the potential for impairment of Mission Creek by the well used by Cedar View Tracts and determined that any effect would be minor and indirect. However, it was possible, given the well's general location within the basin and its depth, that some water which might have otherwise discharged to the creek might instead be captured by this well.

Mitigation:
In order to mitigate for any adverse effects that might result from the operation of this well, Ecology asked Cedar View Tracts to relinquish a surface water certificate. The certificate was for a spring that has been used historically for domestic supply and is currently being used for irrigation, and contributes directly to the Mission Creek drainage. While the effect that the well could have on Mission Creek is diminutive, the spring is directly associated with the creek, and its abandonment will result in the immediate return of water to Mission Creek.